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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/853,790

05/11/2001

Stanley Kremen

102105-162-CIP1

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11/16/2004

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EXAMINER

AMARI, ALESSANDRO V

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,790

Applicant(s)

KREMEN, STANLEY

Examiner

Alessandro V. Amari

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 13-20, 22-25 and 28-56 is/are pending in the application.
- 4a) Of the above claim(s) 2-10, 13-25, 28-35 and 40-56 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 36-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/23/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Newly amended claims 13-22 and newly submitted claims 41-56 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The inventions are currently presented are as follows -

- I. Claims 1 and 36-39, drawn to a method of making holograms, classified in class 359, subclass 1.
- II. Claims 13-22 and 41-56, drawn to a method of making holograms for the production of holographic focusing elements comprising the second optical array, classified in class 359, subclass 26.

Original claims 12-22 elected by the applicant in communication, dated 9 January 2004, were directed to a method of making holograms with specifics of the exposure process (claims 1 and 36-39 were linking claims) and a first action on the merits was provided by the Examiner on 9 April 2004. In the latest reply, dated 9 August 2004, the applicant has canceled claim 12 and has taken claims 13-22 which were dependent on canceled claim 12 and combined them with newly presented claims 41-56. However, independent claim 41 is directed to a method of making holograms for the production of holographic focusing elements comprising the second optical array whereas claim 1 is directed to a method of making holograms by utilizing the second optical array.

Since applicant has received an action on the merits for the originally presented invention (a method of making holograms by utilizing the second optical array), this

invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 13-22 and 41-56 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Information Disclosure Statement

2. The references cited in the information disclosure statement filed 23 June 2004 have been lined through since they are not considered prior art. The non-patent literature cited were a written opinion for PCT/US02/14789 and the response to the written opinion by the applicant.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1 and 36-39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In regard to claim 1, the specification does not describe the limitations of "the distances between the centers of focusing means of the second optical array are a multiple of the distances between the corresponding focusing means of the first optical array" or "wherein the focal lengths of the focusing means of the second optical array are the same multiple of the focal lengths of the corresponding focusing means of the

first optical array". The "distances" or "focal lengths" are not described in the specification. Claims 36-39 inherit the same issue. These limitations constitute new matter.

Regarding claim 38, there is no description in the specification of the recitation of "said coordinated and complementary set of holograms comprises other types of optics". This limitation constitutes new matter.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 and 36-39 are rejected under 35 U.S.C. 102(b) as being anticipated by McGrew US Patent 4,421,380.

In regard to claim 1, McGrew teaches (see for example, Figures 3, 4, 6, 7) a method for making a coordinated and complementary set of holograms comprising at least one hologram, to be used in a system for recording and projecting three-dimensional images, wherein said three-dimensional images are magnified uniformly in all dimensions by a magnification factor, said method comprising: producing a recording reference beam by passing diffuse coherent light from a coherent light source (441) through a first optical array (350) containing a plurality of image focusing means therein, and producing an object beam by passing diffuse coherent light from the same coherent light source through a second optical array (480) containing a plurality of image

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focusing means therein of the same number and arrangement as the first optical array, a) wherein the distances between the centers of the focusing means of the second optical array are a multiple of the distances between the corresponding focusing means of the first optical array, said multiple being equal to the b) magnification factor, and, wherein the focal lengths of the focusing means of the second optical array are the same multiple of the focal lengths of the corresponding focusing means of the first optical array as described in column 4, lines 40-68, column 5, lines 1-68 and column 6, lines 1-44 as understood by the current claim language.

Regarding claim 36, McGrew teaches that the set for holograms is a plurality of holograms as described in column 4, lines 40-68, column 5, lines 1-68 and column 6, lines 1-44.

Regarding claim 37, McGrew teaches that said coordinated and complementary set of holograms is a single hologram as shown in Figures 3-8.

Regarding claim 38, McGrew teaches that coordinated and complementary set of holograms comprises of other types of optics as described in column 4, lines 40-68, column 5, lines 1-68 and column 6, lines 1-44 as is currently understood by the current claim language.

Regarding claim 39, McGrew teaches that a hologram is prepared by exposing portions of a photographic plate incrementally until the entire hologram is produced as shown in Figure 3.

Response to Arguments

7. Applicant's arguments filed 9 August 2004 have been fully considered but they are not persuasive.

The applicant argues in regard to the 35 U.S.C. 112 1st paragraph rejection for claim 1, that the present invention uses the principles of integral photography to enlarge a three-dimensional image uniformly in all three directions and that this is also disclosed in US Patent 6,229,562 from which the present application claims priority. The applicant also asserts that page 2 of the visual presentation (which is an exhibit to the file) illustrates this magnification principle wherein an integral photograph is enlarged and then viewed using a second optical array which is scaled up from the first optical array by a magnification factor. The Applicant asserts that he has proven experimentally that this works.

In response to this argument, the Examiner would like to point out that page 2 of the visual presentation shows that the integral photograph is magnified by ordinary means and then by the second optical array to provide a uniformly magnified three-dimensional image. However, an integral photograph only provides 2-D information for an image and therefore cannot possibly provide a 3-D image as shown on page 2 since the integral photograph does not have any phase information. Furthermore, the applicant has not provided any experimental data that this method actually works.

The Applicant further argues in regard to the 112 1st paragraph rejection that the distances between the centers of the focusing means and the focal lengths while not disclosed in the instant application are inherently disclosed by the '562 patent. The

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applicant asserts that the '562 patent discusses state of the art methods for determining the (F#) for non-spherical focusing elements and that a person of ordinary skill in the art would know that the focal length can be computed as the distance between the centers of the focusing elements. Furthermore, the applicant asserts that one having ordinary skill in the art would understand that the F# between the corresponding focusing elements of the two arrays must remain constant during the scaling up process and would readily understand that the component parts of the equation for determining the F# in the general case would be the focal lengths of the focusing elements and the distances between the centers of the focusing elements (i.e., the aperture) and that the ratios of the focal lengths and the center distances between the two arrays must be the same.

In response to this argument, the Examiner would like to point out that the applicant in his reply admits that the '562 patent (from which priority is claimed) only discloses focusing elements that are non-spherical in contrast to the present application. In fact, the '562 patent discloses cylindrical lenslets and as the applicant admits (see page 4 of the reply, dated 9 August 2004), one can no longer describe the aperture as the diameter of the lenslet since non-circular lenslets (i.e., cylindrical lenslets) do not have a diameter and therefore do not describe "the distances between the centers of the focusing means" as recited in claim 1. Furthermore, the condition that the F# must be the same is not supported for the claimed invention of the instant application but only for the invention described in '562 which clearly states that the focusing elements are non-spherical. Furthermore, the applicant has not provided any

geometrical derivation or mathematical proof of how one would arrive at the conclusion that the focal lengths of the focusing elements and the distances between the centers of the focusing elements and the ratios of the focal lengths and the center distances between the two arrays are the same to support the assertion of inherency.

The applicant then argues that in regard to the 112.1st paragraph rejection, that the new matter rejection regarding claim 38 is addressed by the first sentence of paragraph [0039] of the specification which states: "Holographic imaging devices can be used with more-or-less standard, inexpensive lenses to accomplish all projection functions".

In response to this argument, the Examiner would like to point out that the claim 38 is in regard to **making** these other types of optics, whereas the specification passage is referring to holographic imaging devices which can be **used** with these other types of optics. Therefore, the new matter rejection for claim 38 stands.

The applicant further argues that in regard to the prior art rejection using McGrew that the prior art does not teach the elements or specific relationship between the two optical arrays which provides for the reconstruction of a three-dimensional image that is magnified uniformly in all dimensions by a magnification factor as recited in claims 1 and 36-39.

In response to this argument, the Examiner wishes to point out that given the new matter rejection outstanding in regard to claim 1, McGrew reads on the recitation of claim 1 as is understood by the current claim language.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alessandro V. Amari whose telephone number is (571) 272-2306. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ava²⁴
03 November 2004


MARK A. ROBINSON
PRIMARY EXAMINER